

Appl. No. 10/607,633
Amdt. dated December 6, 2004
Response to Office Action of December 15, 2004

PATENT

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action mailed on September 15, 2004. In this Amendment, claims 7, 16, 17, and 22 are amended, and claim 26 is added, so that claims 7-26 are pending and subject to examination.

Claims 7-17 are rejected for statutory double patenting. Applicants submit that claims 7-17 are not the same as claims 7-17 in co-pending application no. 10/702,792, since the claims in 10/702,792 were amended by a preliminary amendment. Moreover, in this Amendment, independent claim 7 is amended. The claims in 10/702,792 and the claims in this application are thus not the same. Accordingly, withdrawal of the double patenting rejection is requested.

A number of prior art rejections are made. The prior art rejections are addressed in the order presented in the Office Action.

I. McShane et al.

Claims 7, 8, 14, 18, 20, and 24 are rejected as anticipated by McShane et al. (US Patent No. 5,147,821). According to the Office Action, McShane et al. teaches "providing a die 12 that includes a metallized backside 14". This rejection is traversed.

A. Independent claim 7

McShane et al. does not anticipate independent claim 7, since each and every claim element is not taught or suggested by McShane et al. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 621, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Claim 7 recites a method comprising, *inter alia*, "providing a die that includes a backside, wherein the backside of the die forms an electrical

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terminal." FIG. 1 of McShane et al. shows a semiconductor die 12. The backside of the die 12 is mounted on a mounting surface 14 of a leadframe 16. The backside of the semiconductor die 12 in McShane et al. clearly does not form an electrical terminal. For example, element 24 in FIG. 1 of McShane is a heat sink and does not provide any electrical function. Accordingly, McShane et al. fails to anticipate independent claim 7.

It would also not have been obvious to have modified McShane et al. to arrive at the invention defined by independent claim 7. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Fine*, 837 F.2d 1071, 51 USPQ2d 1596 (Fed. Cir. 1988). Here, there is no motivation to modify McShane et al.'s package so that the backside of the die 12 has an electrical terminal. As shown in FIGS. 1 and 2 of McShane et al., the backside of the die 12 is connected to the heat sink 24. One could not provide an electrical connection to the heat sink 24, since the electrical connections to the package 10 are made on the opposite side of the package 10 via the leads 18 and 18'. Accordingly, McShane et al. fails to anticipate or obviate claim 7 or any dependent claims thereon.

B. Independent claim 18

McShane et al. fails to teach or suggest a method comprising, *inter alia*, "encapsulating [a] semiconductor die and at least a portion of the leadframe with a molding compound having a window and an exterior surface, wherein the backside of the semiconductor die is exposed through the window of the molding compound *and wherein the backside is substantially flush with the exterior surface of the molding compound*" as recited in independent claim 18. With regard to claim 18, the Office Action states that the "thickness 52 is heuristic and may be quite thin in addition to 'substantially flush' being subjective to the observer, col. 7, line 35 - col. 8, line 10."

Applicants have reviewed col. 7, line 35 to col. 8, line 10 of McShane et al. and it does not support the Examiner's allegation that the thickness 52, which is a heat sink, is "heuristic" and/or that the phrase "substantially flush" is subjective. Should the Examiner

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maintain this position, the Examiner is requested to point out where the term "heuristic" is at col. 7, line 35 to col. 8, line 10.

Moreover, as noted above, "52" in FIG. 4 of McShane et al. is a "heat sink" and is not the backside of the die 12. The rejection as to claim 18 and dependents thereon should be withdrawn for this reason alone.

FIG. 1 of McShane et al. clearly shows that the exterior surface of the package body 22 is clearly not "substantially flush" with *any* surface of the die 12, let alone the backside of the die 12. In fact, the backside of the die 12 cannot be "substantially flush" with the exterior of the body 22, or else the body 22 would not be able to attach to the heat sink 24 illustrated in FIG. 1. Accordingly, the allegation that FIG. 1 of McShane et al. shows the surface of the die 12 being "substantially flush" with the exterior surface of the body 22 would be based on an unreasonable interpretation of the phrase "substantially flush" and an unreasonable reading of McShane et al. Put another way, to the extent that the Examiner believes that one may "subjectively" interpret the phrase "substantially flush" to read on McShane et al., Applicants submit that such an interpretation would be unreasonable. During patent examination, the claims are given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Again, Applicants submit that the Examiner's interpretation of the claims is "unreasonable", and not reasonable.

It would also not have been obvious to have modified McShane et al. to have arrived at the invention defined by independent claim 18. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Here, if one were to modify McShane et al. to have a die backside that is substantially flush with the exterior surface of the molding compound, one would have to remove the heat sink 24. The heat sink 24 is a critical part of McShane et al.'s invention. See column 2, lines 58-62 of McShane et al. Accordingly, there is no motivation to modify McShane et al. to arrive at the invention of claim 18 and McShane et al. does not render claim 18 or any claims dependent claims thereon obvious.

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II. McShane et al. and Maejima et al.

Claim 9 is rejected as obvious over McShane et al. and Maejima et al. (U.S. Patent No. 5,347,709). This rejection is traversed.

Maejima et al. is cited for its alleged teaching of "resin flashing". Applicants submit that Maejima et al. does not remedy the above-noted deficiencies of independent claim 7.

III. McShane et al. and Orso et al.

Claims 10-12 are rejected as obvious over McShane and Orso et al. (U.S. Patent No. 6,018,686). This rejection is traversed.

Orso et al. is cited for its alleged teaching of marking a boy on the surface opposite the window. Applicants submit that Maejima et al. does not remedy the above-noted deficiencies of independent claim 7.

IV. McShane et al. and Layher

Claims 13, 15, and 23 are rejected as obvious over McShane et al. and Layher (U.S. Patent No. 4,678,358). This rejection is traversed.

Layher is cited for its alleged teaching of pre-plated leads. Applicants submit that Layher does not remedy the above-noted deficiencies of independent claims 7 and 18.

V. McShane et al. and Fosberry et al.

Claims 16, 17, and 21 are rejected as obvious over McShane and Fosberry et al. (U.S. Patent No. 6,214,640). This rejection is traversed.

Fosberry et al. is cited for its alleged teaching of posts for attaching dies. Applicants submit that Fosberry et al. does not remedy the above-noted deficiencies of independent claims 7 and 18.

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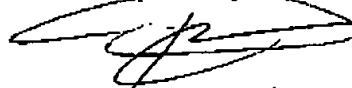
VI. McShane et al. and Merrill

Claims 19 and 22 are rejected as obvious over McShane et al. in view of Merrill (U.S. 5,654,206). Merrill is alleged to teach transistors. Applicants submit that Merrill does not remedy the above-noted deficiencies of McShane et al.

CONCLUSION

For the reasons provided above, Applicants submit that the claims are allowable. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



Patrick R. Jewik
Reg. No. 40,456

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: 415-576-0200
Fax: 415-576-0300
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